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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,735	11/27/2001	Jason Sefcik	017750-597	9867

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EXAMINER

PERUNGAVOOR, SATHYANARAYA V

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding..

Office Action Summary	Application No. 09/993,735	Applicant(s) SEFCIK, JASON	
	Examiner Sath V. Perungavoor	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-22,24-37 and 39-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-22,24-37 and 39-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Duty of Disclosure

[1] The following is a quotation of the appropriate paragraphs of 37 CFR 1.56:

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) Prior art cited in search reports of a foreign patent office in a counterpart application, and
- (2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
- (2) Each attorney or agent who prepares or prosecutes the application; and
- (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

(e) In any continuation-in-part application, the duty under this section includes the duty to disclose to the Office all information known to the person to be material to patentability, as defined in paragraph (b) of this section, which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

- Examiner respectfully requests the applicant(s) to disclose any patents and/or applications that may be material to a double patenting rejection.

Continued Examination Under 37 CFR 1.114

[2] A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 13, 2006 has been entered.

Response to Arguments/Amendments

[3] Presented arguments have been fully considered, but are rendered moot in view of the new ground(s) of rejection.

Claim Objections

[4] Claims 9, 24 and 39 are objected to because of the following informalities: These claims depend from cancelled claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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[5] Claims 1-7, 9, 10, 16-22, 24, 25, 31-37, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. ("Lo") [US 5,062,056] in view Hanna [US 5,488,675].

Regarding claim 1, Lo discloses the following claim limitations:

A method for estimating a position of moving objects in a set of image data, comprising the steps of [Figure 1]: identifying a position (i.e. track gate is positioned to the target's position, hence position is known) of an object (i.e. target) in a first frame (i.e. reference image) of image data acquired at a first time [Column 5 Lines 1-4]; determining that the object (i.e. target) is undetected (i.e. not centered in track gate) in a second frame (i.e. frame F_{i+1}) of image data acquired at a second time [Column 5 Lines 34-36]; estimating movement of the object (i.e. target) to determine its estimated position (i.e. estimated target trackpoint) in the second frame of image data by compensating for image destabilization (i.e. motion of the sensor) and by using at least one of *velocity* and acceleration of the object and *time* between frames of image data; [Column 5 Lines 31-55] and using the estimated position (i.e. target trackpoint) to determine a position of the object (i.e. target) in a third frame (i.e. subsequent image) of image data acquired at a third time [Column 6 Lines 37-40]; and

Lo does not explicitly disclose the following claim limitations:

subtracting stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values.

However, in the same field of endeavor Hanna discloses the deficient claim limitations, as follows:

subtracting stabilization difference values (i.e. error) from positional difference values for each frame of image data to generate stabilized positional difference values
[Column 6, Lines 13-20].

Lo and Hanna are combinable because they are from the same field of object tracking. It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo with Hanna to incorporate stabilization values, the motivation being to obtain stable estimates of location *[Column 1, Lines 49-53].*

Regarding claim 2, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of identifying comprises the step of:
maintaining a database of positional values of the object. *[Column 5 Lines 1-4 and 110 on Figure 1; Positional values are stored in the reference memory.]*

Regarding claim 3, Hanna discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of identifying comprises the step of:
maintaining a database of stabilization values of the object *[Column 6, Lines 13-16].*

Regarding claim 4, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of determining comprises the step of:
retrieving positional values of the object from a database of positional values *[Column 5 Lines 1-4 and 110 on Figure 1; Positional values are stored in the reference memory and used in computations.]*

Regarding claim 5, Hanna discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of determining comprises the step of:
retrieving stabilization values of the object from a database of stabilization values
[Column 6, Lines 13-20].

Regarding claim 6, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of estimating comprises the step of:
calculating difference values between the first frame of image data and the second
frame of image data for positional values of the object *[Column 5 Lines 48-51].*

Regarding claim 7, Hanna discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of estimating comprises the step of:
calculating difference values between the first frame of image data and the second
frame of image data for stabilization values of the object *[Column 4, Lines 30-36 and
55-60].*

Regarding claim 9, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of estimating comprises the step of:
determining a data time interval using a time between frames of image data *[Column 5
Lines 50-51; Time interval between scenes (i.e. frames) is determined.].*

Regarding claim 10, Lo discloses all the claim limitations, as follows:

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The method of claim 9, wherein the step of estimating comprises the step of:
determining an absolute displacement of the object by summing the stabilized
positional difference values over the data time interval [*Column 5 Lines 48-51; The
interval is only one, hence the sum is self contained.*].

Regarding claims 16-22, 24, 25, 31-37, 39 and 40 all claimed limitations are set forth and
rejected as per discussion for claims 1-7, 9 and 10.

[6] Claims 11-15, 26-30 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Lo et al. ("Lo") [US 5,062,056] in view Hanna [US 5,488,675] further in view of Browne [NPL
document titled, previously cited].

Regarding claim 11, Lo and Hanna disclose the claim limitations as set forth in the
discussion for claim 10.

Lo and Hanna do not explicitly disclose the following claim limitations:

The method of claim 10, wherein the step of estimating comprises the step of:
calculating a constant acceleration of the object during the data time interval using a
predetermined acceleration function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as
follows:

The method of claim 10, wherein the step of estimating comprises the step of:
calculating a constant acceleration of the object during the data time interval using a

predetermined acceleration function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed “a” meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Hanna with Browne to calculate a constant acceleration, since the disclosed equations are commonly used to calculate velocity, acceleration and position. Furthermore, Lo’s invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 12, Lo and Hanna disclose the claim limitations as set forth in the discussion for claim 10.

Lo and Hanna do not explicitly disclose the following claim limitations:

The method of claim 11, wherein the step of estimating comprises the step of: calculating a current velocity of the object during the data time interval using a predetermined velocity function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as follows:

The method of claim 11, wherein the step of estimating comprises the step of: calculating a current velocity of the object during the data time interval using a predetermined velocity function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed “v” meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Hanna with Browne to calculate a current velocity, since the disclosed equations are commonly used to calculate velocity, acceleration and position.

Furthermore, Lo's invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 13, Lo and Hanna disclose the claim limitations as set forth in the discussion for claim 10.

Lo and Hanna do not explicitly disclose the following claim limitations:

The method of claim 12, wherein the step of estimating comprises the step of:
calculating an estimated movement of the object from the constant acceleration and current velocity using a predetermined position function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as follows:

The method of claim 12, wherein the step of estimating comprises the step of:
calculating an estimated movement of the object from the constant acceleration and current velocity using a predetermined position function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed "r" meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Hanna with Browne to calculate an estimated movement, since the disclosed equations are commonly used to calculate velocity, acceleration and position. Furthermore, Lo's invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 14, Hanna discloses all the claim limitations, as follows:

The method of claim 13, wherein the step of estimating comprises the step of:
calculating an actual movement of the object by adding stabilization difference values
to the estimated movement of the object. [Column 6, Lines 13-20].

Regarding claim 15, Lo discloses all the claim limitations, as follows:

The method of claim 14, wherein the step of estimating comprises the step of:
calculating an estimated position (i.e. U_N) of the object in the second frame of image
data by adding the actual movement (i.e. $k.V$) of the object to the position (i.e. $U_{N,K}$)
of the object in the first frame of image data [Column 7 Lines 10-20].

Regarding claims 26-30 and 41-45 all claimed limitations are set forth and rejected as per
discussion for claims 11-15.

Contact Information

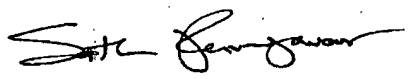
[7] Any inquiry concerning this communication or earlier communications from the examiner
should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The
examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to
Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application
or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: April 26, 2006

By: 

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